

June 3, and published in the *Times* for June 4, asserted that "the lava has still half a metre to run before reaching the Alcantara." The previous telegram asserted that the lava had run eleven kilometres from the craters, had rolled into the Alcantara, and had obliterated the Commune of Mojo; while the telegram of the following day made the stream 350 yards from the Alcantara. The fact is, that part of Etna is not thickly populated; distances are often guessed at; the new craters are not easily reached; and the shower of ashes prevented accurate observation, hence the discrepancies. But by a careful comparison of the telegrams, with the *Dettagli sull' eruzione dell' Etna*, issued by the Prefect of Catania at frequent intervals, the broadside sheets entitled *Guasti dell' eruzione dell' Etna*, and the letter written, on May 29, from Taormina, to the *Times*:—by comparing these with the fine map (scale = 1:266 inch to the mile) of the Italian Stato Maggiore, some of the discrepancies disappear, and a just estimate may be formed of the position of the new craters.

All accounts agree in placing the new craters near Monte Nero, but unfortunately there are two minor cones near together which bear the name of Monte Nero. We are helped out of this difficulty, however by the statement that the new craters are 1,900 metres (6,232 feet) above the level of the sea, that the higher of the two Monte Neros is far above this level, while the lower of the two has a little to the west of it a space marked by contours 1,900 metres. Here, accordingly, we shall place the new craters without hesitation.

The great crater, Randazzo, and Linguaglossa, form the three points of a nearly equilateral triangle, within which at present the eruption is completely confined. Linguaglossa is 12 miles from Randazzo, and 11 from the great crater, while Randazzo is only 10 miles from the crater. The new craters are 5 miles from the great crater, $7\frac{1}{2}$ from Randazzo, 7 from Linguaglossa, 7 from Mojo, $6\frac{1}{2}$ from the River Alcantara, and 5 from Passa Pisciaro.

The lava has devastated the wood of Collebasso, and has crossed the main road at Passo Pisciaro, destroying the bridge there. Several vineyards have been destroyed, and if the bed of the Alcantara is invaded, the water supply will be cut off from a large tract of fertile land. The lava stream at Passo Pisciaro is about half a mile broad and 100 feet in depth. On May 30 it flowed at a rate of one metre per minute.

The last bulletin received to-day (June 6) from Catania dated June 1, 10 A.M., ends as follows:—"L'eruzione continua al solito. La lava verso il fiume dilatasi sempre, e scende sensibilmente. Stanotte un nuovo braccio investi la vigna di Salvatore Cimino, che quasi distrusse, producendo un danno di circa trentamila lire. La casina prospiciente sullo stradale versa in imminente pericolo." Signor Silvestri of Catania, together with two Germans, have penetrated as near as possible to the new craters. Silvestri, together with Prof. Blaserna of Rome, and Prof. Gemellaro of Padua, have been appointed to report on the eruption, in the interests of vulcanology. It was asserted in the telegram of June 6 from Messina that the stream of lava is only 100 metres from the Alcantara, and that it is advancing at a rate of fifteen metres per hour. Loud rumblings and dense smoke proceed from the new craters.

During the last few days the telegrams have stated that the eruption is diminishing, and that although the lava has slowly progressed, it has not yet reached the Alcantara. Some curious errors have been propagated in the newspapers. Thus the *Times* correspondent in Naples, writing under the date of June 2 (published June 10), asserts that "the side on the north-west is rent in two, and the fiery mass is ejected to the height of 1,900 metres, or considerably more than a mile." The real facts are that the new craters stand at an elevation of

1,900 metres above the sea; while a fissure which does not extend over even one-half the north-west side of the mountain, has been formed near Monte Nero. It has been asserted that saline mud has recently been ejected; also that the craters emitted on June 2, 450 cubic metres of lava per minute; also that the principal lava stream has a front of 800 metres, and that it has flowed for six or seven miles. But in regard to any exact statements, it will be preferable to wait for the report of Professors Blaserna, Gemellaro, and Silvestri; or at least for the very detailed account of the eruption, which is sure to appear in the next number of Prof. de Rossi's *Bolletino del Vulcanismo Italiano*.

G. F. RODWELL

NOTES

WE understand that by permission of the Statistical Committee of the India Office, the new tide-predictor, which has been constructed for the Survey Department by Mr. E. Roberts (*Nautical Almanac Office*), will be exhibited at the closing meeting of the Royal Society on the 19th inst. The instrument, although not yet out of the makers' hands, is sufficiently complete to show its entire working; in fact, the tide-curves for the year 1880 for Bombay and Kurrachee, have been already run off, and the results are now being tabulated for printing. Specimen tide-curves of the Southern Indian, Pacific, and North Atlantic Oceans, the English Channel, and the Mediterranean, will also be exhibited to show the universality of the system of prediction by the instrument.

AMONG those on whom the honorary degree of LL.D. was conferred in the Senate House at Cambridge on Tuesday were Mr. Justice Grove, Dr. W. Spottiswoode, Prof. Henry J. S. Smith, Prof. T. H. Huxley, and Mr. H. C. Sorby.

PROF. HUXLEY has been elected a corresponding member of the Paris Academy of Sciences, in the section of Anatomy and Zoology, in succession to the late Prof. von Baer; and M. Schiaparelli in the Section of Astronomy, in place of the late M. Tisserand.

THE death is announced, on the 9th inst., of Dr. Moore, who for more than forty years has filled the office of Curator of the Botanic Gardens, Glasnevin, Dublin. He was a native of Dundee, and commenced the study of botany under the late Dr. Mackey, Curator of the College Botanical Gardens, whose place his eldest son, Dr. F. W. Moore, now fills. He was for some time employed on the geological survey of Ireland before he was appointed Curator of the Royal Dublin Society's Gardens at Glasnevin. He pursued the study of botany with great ardour, not only at home, but in various parts of the Continent. Among his works were "Notices of British Grasses," "Irish Hepaticæ," and "Irish Mosses."

It is proposed immediately to establish a zoological station on the Aberdeen coast, in connection with the natural history laboratory of the University, similar to those already instituted for the Universities of Paris, Vienna, and Leyden. The objects of such a station are:—1. To supply the laboratory with fresh animals for purposes of teaching and research. 2. To enable students to become practically acquainted with natural history, and to afford them opportunities of advanced study and independent research, during the vacations. 3. To afford means for the exhaustive study of the marine fauna. For the establishment of such a station on the smallest possible scale it is necessary to have:—(1) A movable shed or house with suitable fittings; (2) a large fishing boat and a small two-oared boat; (3) nets and dredges; (4) aquaria glassware and miscellaneous apparatus; (5) the services of a fisherman and a boy for part of the year. For the purchase of boats and apparatus a sum of 250*l.* is required,

and for wages, &c., at least 75% annually. Lord Roseberry has given a donation of 50%, and other subscriptions raise the total sum already obtained to 180%. It is not creditable to this wealthy country that it possesses no zoological station, and we trust our readers will do what they can to assist in raising the moderate sum required. Subscriptions may be sent to Mr. G. J. Romanes, 18, Cornwall Terrace, Regent's Park, N. W.

A NEW work is announced by Prof. Boyd Dawkins, on "Early Man in Britain and His Place in the Tertiary Period." In this the results of geological and archaeological research, so far as they relate to the history of man in this country, will be placed before the reader in a connected narrative. Man will be treated as the central figure in the tertiary period, and the various changes in geography, climate, and living forms which preceded his arrival in Britain, will be examined, as well as those changes in his environment which took place after he appeared in Europe. His antiquity, his relation to the glacial period, and to existing peoples, and his manner of life, will be discussed, as well as the distribution of the Iberic and Celtic races, their manners and customs, their progress in civilisation, and the extent to which they were influenced by the civilised nations of the Mediterranean. It is the principal object of this work to give a picture of man isolated in Britain, from his first arrival down to the Roman invasion. It will be largely illustrated with maps and engravings. The work will be published by Messrs. Macmillan and Co.

MR. RUDLER has succeeded to the place of the late Trenham Reeks, in the Geological Museum, Jermyn Street.

IN an appreciative article on Sir Henry Bessemer, *à propos* of his knighthood, the *Times* gives some striking statistics to show the vast advances made in the production of steel since the adoption of the Bessemer process:—"Prior to this invention the entire production of cast steel in Great Britain was only about 50,000 tons annually, and its average price, which ranged from 50% to 60% per ton, was prohibitory of its use for many of the purposes to which it is now universally applied. In the year 1877, notwithstanding the depression of trade, the Bessemer steel produced in Great Britain alone amounted to 750,600 tons, or fifteen times the total of the former method of manufacture; while the selling price averaged only 10% per ton, and the coal consumed in producing it was less by 3,500,000 tons than would have been required in order to make the same quantity of steel by the old or Sheffield process. The total reduction of cost is equal to about 30,000,000% sterling upon the quantity manufactured in England during the year; and in this way steel has been rendered available for a vast number of purposes in which its qualities are of the greatest possible value, but from which its high price formerly excluded it. During the same year the Bessemer steel manufactured in the five other countries in which the business is chiefly conducted—namely, the United States, Belgium, Germany, France, and Sweden—raised the total output to 1,874,278 tons, with a net selling value of about 20,000,000% sterling. The works in which these operations were carried on were eighty-four in number, and represent a capital of more than three millions. According to the calculations of Mr. Price Williams, who has made the endurance of rails a matter of careful study, the substitution of Bessemer steel for iron for this purpose alone will produce a saving of expenditure during the life of one set of steel rails on all the existing lines in Great Britain of a sum of more than one hundred and seventy millions sterling. It may safely be said that there is no other instance in history of an analogous impetus to manufacture, or of an analogous economy, being the result of the brain-work of a single individual; still less is there an instance of such results being realised while the inventor was

living to enjoy the fruits of his labours, and able to work in fresh directions to increase the benefits which he had already conferred upon his country and upon mankind."

THE enterprising Birmingham Natural History and Microscopical Society have again arranged a marine excursion, this time to Falmouth, during next month, on a somewhat similar principle to those to Arran, which proved so successful in the last two years. Facilities will be afforded for dredging excursions and for land excursions to investigate the botany and highly interesting geology of the district. The botany of the district is very peculiar and interesting, and the geology is unique in the British Islands, Kynance Cove and the Lizard being within easy reach of day excursions from Falmouth. During the summer season a most interesting series of observations may be made on the microscopic larval forms of marine life (hydroids, echinoderms, annelids, &c.), which abound in the sea, and may at this time readily be taken by the tow net. A small steamer will be chartered, which will economise time and add to personal comfort. The marine fauna of the Cornish coast is exceedingly rich and varied. The time for the excursion will be from the 5th to the 14th or 21st of July.

PROF. VIRCHOW has returned to Berlin from Asia Minor, where, as our readers are aware, he had taken part in Dr. Schliemann's excavations. The learned professor was received with great honours at Athens. The Medical Faculty of the High School of that city presented him with the honorary doctor's diploma, and the Medical Society of Athens elected him an honorary member.

IN digging a channel in the neighbourhood of Lake Neuchâtel, a lacustrine canoe, very nearly seven metres long, has been found. It has been placed in the Cantonal Museum.

IN addition to the list of quite recent earthquakes we gave last week, we now have reports of two more. At Aachen (Aix la Chapelle) several shocks were felt on May 26, soon after 8 P.M., which seemed to proceed in the direction from west to east; and at Idstein (in the Prussian province of Nassau) a violent shock occurred on May 27, about 1 A.M.

M. DE LESSEPS has accepted the chairmanship of a committee for arranging the commemoration of the eighteenth centenary of the great eruption of Vesuvius in 79, when Pliny lost his life, and Pompeii and Herculaneum were destroyed. According to the most trustworthy records it was on the 23rd of August that this unexpected event took place.

M. CLAMOND, the inventor of a thermo-electric pile, has succeeded in producing a current strong enough to work a Serrin regulator with tolerable success. The expense is only 7 kilogrammes of coals per hour, and the appearance of the battery reminds one of an ordinary furnace.

THE Paris Academy of Meteorological Ascents has inaugurated the series of its aerial excursions. The first took place at St. Mandes and the second at Arcueil on the occasion of the opening of the École Laplace. The ascensionists propose to take photographs from the car in order to ascertain the position of the balloons and make a verification of the laws of barometric height. The original idea of this difficult operation may be attributed to Leverrier. Each of these ascents will be followed by the publication of diagrams and scientific results obtained. They are prefaced by a lecture, given by a member of the association, on the practice of *aéronautics*.

FROM June 7 up to the end of the month the exhibition of Beaux Arts at the Paris Palais de l'Industrie will be lighted every night by electricity. The motive power is supplied by 262 Jablochkoff electric lights. 120 have been distributed in the

gardens where statues are exhibited; 142 in the saloons where pictures are suspended on the walls. The 120 candles are surrounded by opaline globes, which diminish the total effect, but the general illumination is satisfactory. The other 142 have been placed in translucent glass spheres, which leaves the light its original force. The appearance of the pictures is splendid and the general impression is exceedingly favourable. It is supposed that the garden could well be arranged shortly according to the same system, and the illumination will be unrivalled in brilliancy. The partial extinctions are very few and generally very easily repaired. The motive force is supplied by four steam-engines placed in a shed at a distance, and is estimated at 300-horse power (seventy-five for each motor). The consumption of coal and other expenses are very small in comparison with the receipts which were more than 200% for the first evening. It is divided in two equal parts, one for the Government and the other for the Jablochkoff Company. But the speculation cannot be said to be a paying one owing to the expenses of installation. The length of insulated wire is about 42,000 yards at a shilling each, and the other expenses in proportion. But it is supposed that the scientific exhibition will inherit the bargain and the electric fixtures, which are said to be worth 20,000%, will be in constant use up to the Month of November.

FROM Friedländer and Son, of Berlin, we have received two very full Catalogues of works in Geology and Geognosy, which we commend to all interested in these subjects.

IN reference to a statement in the *Globe* that the prediction of an earthquake to happen on or about May 21 was falsified, a correspondent, Mr. Frank Barnard, writes that on that day he felt the movement of an earthquake at Hastings, at 12 noon. He describes it as a quivering of the ground, slight, but too palpable to pass unheeded, communicating a quiver to his whole frame such as he never felt before. He forwards us a cutting from his sketch-book, on which he pencilled at the time a record of the occurrence.

IN reference to Mr. Hosie's article in last week's *NATURE*, on Chinese Observations of Sun-Spots, a correspondent writes that Mr. Sayce, in his "Babylonian Literature," shows that more than 4,000 years ago it was recorded in the library of Nineveh that the sun was spotted on the first day of the Chaldean year, "from which," says a *Times* reviewer, "we may infer the presence of an unusually large spot." We may, our correspondent thinks, infer more—the presence of spots.

MR. R. ETHERIDGE has written to the *Times* on a boring made by the New River Company at Ware in Herts, in which it was found that the Gault at a depth of 800 feet rests upon the Upper Silurian rocks (the Wenlock Shale), richly fossiliferous, dipping at an angle of 40 deg., but to what point of the compass is not at present known. The *Geological Magazine* for June reprints the letter and appends a list of the fossils found in the cores of the Wenlock.

WHEN King Victor Emmanuel took possession of Rome he left the Roman Observatory in the hands of the late Father Secchi, out of respect for his exceptional merits. When Father Secchi died, the Pope appointed his successor, who took possession of the establishment and refused to leave the place. He has been expelled, however, *manu militari*.

THE Roman Alpine Club has decided to send an excursion to Etna, which will leave Rome on July 1. Intending excursionists are directed to address the Secretary of the Roman section of the Italian Alpine Club before the 15th instant, as preparations are required for the comfort and safety of the excursionists. We believe that any one, irrespective of nationality, can join the excursion. The travelling expenses from Rome to Catania will

be diminished by one-half, owing to the liberality of railway and steamer companies. The duration of the excursion will be at least seven days.

WE have received several numbers of the *Naturalist*, the journal of the Yorkshire Naturalists' Union, from which we see that the many societies composing that union are as active as ever. A most interesting series of excursions has been arranged for the summer.

M. E. MOREL, who has been Belgian Consul at Shanghai for many years, has informed the *North China Herald* that his Government, with the view of bringing the manufacturers of Belgium into greater prominence, contemplate the establishment at that port of a permanent museum in which specimens of all descriptions of Belgian manufactures and produce will be exhibited. It is believed that about 1,000% per annum will be expended on this object.

THE additions to the Zoological Society's Gardens during the past week include a Rhesus Monkey (*Macacus erythraeus*) from India, presented by Mr. J. Beech; a Golden Eagle (*Aquila chrysaëtos*) from the Western Hebrides, presented by the Earl of Dunmore, F.Z.S.; a Red and Yellow Macaw (*Ara chloroptera*) from South America, presented by Miss C. Catlin; two Common Kingfishers (*Alcedo ispida*), British Isles, presented by Mr. W. W. Cobb; a Common seal (*Phoca vitulina*), British Isles; three Javan Peafowls (*Pavo spicifer*) from Burmah, deposited; three Maned Geese (*Bernicla jubata*) from Australia, purchased; an Eland (*Oreos canna*), a Canadian Beaver (*Castor canadensis*), a Great Kangaroo (*Macropus giganteus*), a Red Kangaroo (*Macropus rufus*), a Bennett's Wallaby (*Halmaturus bennetti*), born in the Gardens; four Amherst Pheasants (*Thaumalia amherstiae*), three Egyptian Geese (*Chenolopex aegyptiaca*), bred in the Gardens.

SCHLIEMANN'S TROJAN EXCAVATIONS

THE *Times* of Tuesday contains several letters from Dr. Schliemann, describing the researches he has been recently making in the Trojan country in company with Dr. Virchow of Berlin, and M. Burnouf, of Athens. They endeavoured to ascertain the geological character of the plain of Troy, by sinking shafts in different parts between Mount Hissarlik and the Hellespont. Dr. Schliemann states:—"We obtained everywhere the same result—viz., below the clay soil a thick layer of coarse or fine river sand, and below it the very compact dark-brown clay of the plain. But the most important result was obtained by the shaft we sunk in the Stomalimne, mentioned by Strabo, which is an easily recognisable swamp, situate between the mouths of the rivers; it slopes abruptly from the plastic clay of the plain to a field of sand which is nearly on a level with the sea. Excavating there, we found below the layer of sand, which is hardly an inch thick, a layer of plastic clay, about 16 inches thick, which is perfectly the same as in the plain, and below it a dark-blue sand containing putrified vegetable matter, which can leave no doubt that here existed a swamp. The upper part of this layer of blue sand is exactly on a level with the sea and with the adjoining inlet, the water of which is brackish and has no current. Having dug in this blue sand a large hole two feet deep, we saw the water filtering from all sides through the sand and soon filling the hole completely, and thus the water's surface was on a level with both inlet and sea; but this water was sweet and drinkable. In no one of our shafts sunk elsewhere did we discover the slightest trace of the sea having ever sojourned there; everywhere we found only the produce of sweet water. Thus it is evident that the soil of the plain of Troy has been produced by sweet water, and that this deposit is anterior to the existence of both the Scamander and the Simois, the more so as the modifications produced by these rivers are but very slight." Therefore he maintains the theory that at the time of the Trojan war the sea formed a deep gulf in the Plain of Troy, that the later Ilium (Hissarlik) was too near the Hellespont, and no space left for the great deeds of the "Iliad"; that consequently the two cities